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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:  
Rasmus B. JENSEN, et al.

Appl. No. 10/724,264

Filed: November 26, 2003

For: PROTEORHODOPSIN  
MUTANTS WITH IMPROVED  
OPTICAL  
CHARACTERISTICS

Art Unit: 1645

Examiner: Not Yet Assigned

Attorney Docket: 02716.0005.NPUS01

**Information Disclosure Statement**

Mail Stop AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that had been cited by or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. § 120. 1138 OG 37, 38 (May 19, 1992).

Applicants have checked the appropriate boxes below.

- 1. This Information Disclosure Statement is being filed;
  - a. Within three months of the U.S. filing date of a national application other than a continued prosecution application under §1.53(d);
  - b. Within three months of the date of entry of the national stage as set forth in §1.491 in an international application;
  - c. Before the mailing date of a first Office Action on the merits;
  - d. Before the mailing of a first Office Action after filing of a request for continued examination under § 1.115.

No statement under 37 C.F.R. § 1.97(e) or fee is required.

or;

- 2. This Information Disclosure Statement is being filed after the period specified in paragraph 1(a)-1(d) above, but before the mailing date of a Final Rejection or Notice of Allowance, or action that otherwise closes prosecution in the application, and
  - a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1), or

b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2), or

c. Attached is our Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p).

3. This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but on or before payment of the Issue Fee. Attached is our Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(i), and

a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1), or

b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

4. Relevance of the non-English language document(s) is discussed in the present specification.

5. The document(s) was/were cited in a corresponding foreign application. An English language version of the foreign search report is attached for the Examiner's information.

6. A concise explanation of the relevance of the non-English language document(s) appears below:

7. The Examiner's attention is directed to co-pending U.S. Patent Application No. \_\_\_\_\_, filed \_\_\_\_\_, which is directed to related technical subject matter. The identification of this U.S. Patent Application is not to be construed as a waiver of secrecy as to that application now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited application and the art cited therein during examination.

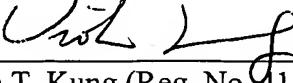
8. Copies of the documents were cited by or submitted to the Office in Application No. \_\_\_\_\_, filed \_\_\_\_\_, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and to indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 08-3038 referencing docket number **02716.0005.NPUS01**.

Respectfully submitted,

Date: October 5, 2004

  
\_\_\_\_\_  
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**INFORMATION DISCLOSURE  
CITATION  
PTO-1449**

ATTY. DOCKET NO.	SERIAL NO.
02716.0005.NPUS01	10/724,264
APPLICANT: Rasmus B. Jensen, et al.	
FILING DATE	GROUP: 1645
November 26, 2003	

**U.S. PATENT DOCUMENTS**

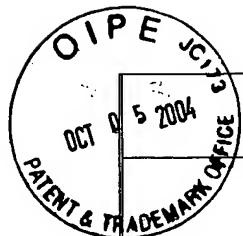
EX'R INITIAL	PATENT NO.	DATE MM-YYYY	NAME	CLASS	SUBCLASS	FILING DATE
	5,825,725	10-2003	Rayfield, et al			

**FOREIGN PATENT DOCUMENTS**

EX'R INITIAL	PATENT NO.	DATE MM-YYYY	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	WO01/83701 A2	11-2001	PCT				
	WO02/10207 A2	02-2002	PCT			X	

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

EX'R INITIAL	DOCUMENT
	Oded Bej��, et al., "Proteorhodopsin Phototrophy in Ocean", 2001, in <i>Nature</i> , <u>411</u> , pp. 786-9.
	Oded Bej��, et al., "Bacterial Rhodopsin: Evidence for a New Type of Phototrophy in Sea", 2000, in <i>Science</i> , <u>289</u> , pp. 1902-6.
	Andrei K. Dioumaev, et al., "Proton Transfers in the Photochemical Reaction Cycle of Proteorhodopsin," 2002, <i>Biochem.</i> <u>41</u> , pp. 5348-58.
	Andrei K. Dioumaev, et al., "Proton Transport by Proteorhodopsin Requires that Renital Schiff Base Cunterion Asp-97 Be Anionic," 2003, <i>Am. Chem. Society</i> . <u>42</u> , pp. 6582-7.
	Thomas Friedrick, et al., "Proteorhodopsin is a Light-driven Proton Pump with Variable Vectoriality," 2002, <i>J. Mol. Biol.</i> , <u>321</u> , pp. 821-38.
	N.A. Hampp, "Bacteriorhodopsin: mutating a biomaterial into an optoelectronic material," 2000, <i>Appl. Microbiol Biotechnol.</i> , <u>53</u> , pp. 633-9.
	Bradley R. Kelemen, et al., "Proteorhodopsin in living color: diversith of spectral properties within living bacterial cells," 2003, <i>Biochimica et Biophysica Acta</i> , <u>1618</u> , pp. 25-32.
	Richard A. Krebs, et al., "Resonance Raman Characterization of Proteorhodopsin's Chromophore Environment," 2003, <i>J.Phys. Chem. B G</i> , <u>107</u> , pp 7877-83.
	Richard A. Krebs, et al., "Detection of fast light-activated H+ release and M intermediate formation from Proteorhodopsin," 2002, <i>BMC Physiol.</i> <u>2</u> , pp. 5-12, published April 9, 2002.



5 2004	Melinda Lakatos, et al., "Photochemical Reaction Cycle of Proteorhodopsin at Low pH," 2003, <i>Biophysical</i> , <u>84</u> , pp. 3252-6.
	Dikla Man, et al., "Diversification and spectral tuning in marine proteorhodopsins," 2003, <i>J. EMBO</i> , <u>22</u> , pp. 1725-31.
	Gazalah Sabehi, et al., "Novel Proteorhodopsin variants from Mediterranean and Red Seas," 2003, <i>Environmental Microbiol.</i> , <u>5</u> (10), pp. 842-9.
	José R. dela Torre, et al., "Proteorhodopsin genes are distributed among divergent marine bacterial taxa," 2003, <i>PNAS</i> , <u>100</u> (22), pp. 12830-50.
	György Varó, et al., "Characterization of Photochemical Reaction Cycle of Proteorhodopsin," <i>J. Biophysical</i> , 2003, <u>84</u> , pp. 1202-7.
	Wei-Wu Wang et al., "Spectroscopic and Photochemical Characterization of a Deep Ocean Proteorhodopsin," 2003, <i>J. Biol. Chem.</i> , <u>278</u> (36), pp. 33985-91.
EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.	
*If an asterisk is placed beside the reference number, a copy is not provided because the reference was previously cited by or submitted to the PTO in a prior application that is identical in the statement and relied upon for an earlier filing date under 35 U.S.C. §120. 37 C.F.R. §1.98 (d).	